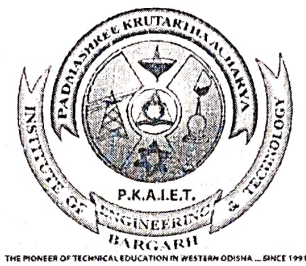
PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN

Session-2024-2025

Semester: 6 Discipline: Electrical Engg.

Subject: Renewable Energy (RE)

Name of the Teaching Faculty: Bimal Kumar Gadtia

Subject: Renewable Energy No. of Days/per week class allotted : 4

Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1	Introduction to Renewable Energy Environmental Consequence of fossil fuel
	2	Importance of Renewable source of Energy Sustainable Design and Development
	3	Type of Renewable energy source limitation of Renewable Enery source
	4.	Present Indian & International energy Sequence of Conventional & RE source
2	5	Solar Energy Solar photovoltaic System - Operating Principle
	6	Photo voltaic Cell Concept Cell, Module
	7	Array, Series & parallel Connection, Maximum Power point Tracking (MPPT)
	8	Classification of Energy sources.
3	9	Terrestrial & Extra-terrestrial Radiation
	10	Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar Constant
	11	Solar collector Type & Performance Characteristics
	12	Solar Collector Type & Performance Characteristics

Signature of the Faculty

Subject: Renewable Energy No. of Days/per week class allotted : 4

Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
4	13	Solar Collector Type & Performance Characteristics
	14	Solar Collector Type & performance characteristics
	15	Application :- Photovoltaic System Battery Charger
	16	Application :- Domestic lighting system Street lighting system water pumping system
5	17	Application :- Solar cooker Solar pad
	18	Wind Energy :- Introduction to wind Energy Wind Energy conversion system.
	19	Type of Wind Turbine
	20	Type of Wind Turbine
6	21	Aerodynamics of Wind Rotor
	22	Introduction to Induction Generator Sychronous Generator
	23	Introduction to Induction Generator Sychronous Generator
	24	Grid Connected & Self Excited Induction Generator operation

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Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
7	25	Grid connected & self Excited Induction Generator operation
	26	Constant voltage & constant frequency Generation with power Electronics control
	27	Constant voltage & constant frequency Generation with power electronics control.
	28.	Single and Double output System
8	29	Characteristics of wind power plant
	30.	Characteristics of wind power plant
	31	Biomass power : Energy from Biomass
	32	Biomass as Renewable Energy source.
9	33	Biomass as Renewable Energy source
	34	Type of Biomass fuel :- solid Liquid Gas
	35	Type of Biomass fuel :- solid Liquid Gas
	36	Combustion & Fermentation process

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Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
10	37	Anaerobic Digestion
	38	Type of Biogas Digester
	39	Wood Gassifier
	40	Pyrolysis
11	41	Application of Biogas, Bio Diesel
	42	Other Energy Sources, Tidal Energy, Energy from tides, Barrage & Non Barrage Tidal Power System
	43	Other energy sources, Tidal Energy, Energy from tides, Barrage & Non Barrage tidal Power System
	44	Ocean Thermal Energy Conversion (OTEC)
12	45	Ocean Thermal Energy Conversion (OTEC)
	46	Geothermal Energy : Classification
	47	Geothermal Energy : classification
	48	Geothermal Energy : classification

Signature of the Faculty

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Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
13	49	Hybrid Energy ~~stem~~ System
	50	Hybrid Energy ~~stem~~ system
	51	Need of Hybrid energy system
	52	Need of Hybrid energy system
14	53	Diesel - PV Energy Conversion system
	54	Diesel - PV Energy Conversion System
	55	Wind - PV Energy Conversion System
	56	Wind - PV Energy Conversion system
15	57	Micro-hydel - PV Energy Conversion system
	58	Microhydel - PV energy conversion system
	59	Electric Vehicle & Hybrid electric vehicle.
	60	Electric - Vehicle & Hybrid electric vehicle.

Signature of the Faculty